

Product Ferric Chloride
 Revision date 15 September 2022
 Revision 1



Safety Data Sheet (SDS)
 according to Regulation (EC) No. 1907/2006

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Ferric Chloride
Product no. 120
Other means of identification No information available.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses Used in wastewater treatment.
 For industrial use only.
Uses advised against Any other purpose.

1.3 Details of the supplier of the safety data sheet

Supplier ENVA UK Limited
 Enviro Building
 Private Road 4 Colwick Industrial Estate
 Nottingham NG4 2JT
 United Kingdom
 Tel: + 44 01928 513355
 SDSrequest@enva.com

Contact person

1.4 Emergency telephone number

Emergency telephone 00353 (0)57 867 8600
National emergency telephone number Members of the public, UK: NHS 111 (England), NHS 24 (Scotland) or NHS Direct (Wales).
 Healthcare professionals, UK: +44 0344 892 0111.

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (EC 1272/2008)
 Physical and chemical hazards Me. Corr 1 - H290
 Human health Acute Tox 4 - H302, Eye Dam. 1 - H318, Resp. Sens 1 - H334, Skin. Sens 1 - H317, Muta. 2-
 H341, Carc. 1A - H350, Repr. 1B- H360D, STOT RE 1 - H372, Skin Corr. 1B - H314
 Environment Aquatic Chronic 3 - H412

2.2 Label elements

Contains Iron trichloride
 Hydrochloric acid 1- 5%
 Nickel dichloride

Label in accordance with (EC) no. 1272/2008



Signal word Danger

Hazard statements H290 May be corrosive to metals.
 H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H341 Suspected of causing genetic defects.
 H350 May cause cancer.
 H360D May damage the unborn child.
 H372 Causes damage to organs through prolonged or repeated exposure.
 H412 Harmful to aquatic life with long lasting effects.

Precautionary statements**Prevention**

P260 Do not breathe dust/fume/ gas/mist/vapours/spray.
 P280 Wear protective gloves/ protective clothing/eye protection/face protection.

Response

P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a POISON CENTER or doctor/physician.

2.3 Other hazards

None known.

Section 3: Composition/information on ingredients**3.1 Substance**

Not applicable.

3.2 Mixtures

Name	Product identifier	Regulation (EC) No 1272/2008	%
Iron trichloride	CAS-No.: 7705-08-0 EC No.: 231-729-4	Me. Corr 1 - H290, Acute Tox 4 - H302, Skin Irrit.2 - H315, Eye Dam. 1 - H318	30-60%
Hydrochloric acid	CAS-No.: 7647-01-0 EC No.: 231-595-7	Skin Corr. 1B - H314, STOT SE 3 - H335	1-5%
Nickel dichloride	CAS-No.: 7718-54-9 EC No.: 231-743-0	Acute Tox 3 - H301, Skin Irrit.2 - H315, Skin. Sens 1 - H317, Acute Tox 3 - H331, Resp. Sens 1 - H334, Muta. 2- H341, Carc. 1A - H350, Repr. 1B- H360D, STOT RE 1 - H372, Aquatic Acute 1 - H400, Aquatic Chronic 1 - H410	<=1%

The full text for all hazard statements are displayed in section 16.

Composition comments

Hydrochloric Acid...% - Specific Concentration Limits - STOT Single Exposure 3: >= 10%; Skin Corrosion 1B: >= 25%; Skin Irritation 2: >= 10 - < 25 %; Eye Irritation 2: >= 10 - < 25 %.

Nickel dichloride: SCLs = STOT Repeated Exposure 1; H372: C >= 1 %, STOT Repeated Exposure 2; H373: 0,1 % < C < 1 %, Skin Irritation 2; H315: C >= 20 %, Skin Sensitisation 1; H317: C >= 0,01 %.

Nickel dichloride - M Factor: M(Acute)=1; M(Chronic)=1.

The data shown is in accordance with (EC) No 1907/2006, as amended by UK SI 2019/758.

Section 4: First aid measures**4.1 Description of first aid measures****General information**

General first aid, rest, warmth and fresh air. As a general rule, in case of doubt or if symptoms persist, always call a doctor. NEVER induce swallowing in an unconscious person. Show this safety data sheet or product label to medical personnel.

Inhalation

If this product is inhaled, move the exposed person to fresh air promptly. It may be dangerous to the person providing first aid to give mouth-to-mouth respiration. If unconscious place in recovery position and seek medical advice. Maintain an open airway. Loosen any tight clothing on neck or chest. If the exposed person is not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Rinse mouth thoroughly. If vomiting occurs spontaneously, keep head low and/or keep airway clear. Get medical attention immediately.

Skin contact	Immediately wash with water, preferably under a shower, removing contaminated clothing while washing proceeds. Continue to rinse for at least 15 minutes. Wash clothing before reuse. Seek medical attention immediately.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Do not rub eye. Avoid contaminating unaffected eye. Remove contact lenses if present and easy to do so. Get prompt medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General information	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. Suspected of causing genetic defects. May cause cancer. May damage the unborn child. May cause damage to organs through prolonged or repeated exposure.
Inhalation	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Ingestion	Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Skin contact	Causes severe skin burns. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to the physician	Treat symptomatically. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
-------------------------------	--

Section 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media	Use fire-extinguishing media appropriate for surrounding materials. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	High volume water jet.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products	When heated, toxic and corrosive vapours/gases may be formed. Combustion products may include and are not limited to: Oxides of carbon. Hydrogen chloride (HCl). Metal oxides.
Unusual fire & explosion hazards	In the case of fire or if heated, a pressure increase will occur and the container may burst.
Specific hazards	Water used for fire extinguishing, which has been in contact with the product, may be corrosive.

5.3 Advice for firefighters

Special fire fighting procedures	If possible, fight fire from protected position. Ventilate closed spaces before entering them. Keep up-wind to avoid fumes. Avoid breathing fire vapours. Containers close to fire should be removed immediately or cooled with water if safe to do so. Do not allow run-off from fire fighting to enter drains or water courses.
Protective equipment for firefighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation. In case of inadequate ventilation, use respiratory protection. Eliminate all sources of ignition. Read and follow manufacturer's recommendations. Do not touch or walk through spilled material. If necessary evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. No action shall be taken involving any personal risk or without suitable training.
For emergency responders	Follow safe handling advice and personal protective equipment recommendations for normal use of product.

6.2 Environmental precautions

Environmental precautions	Do not discharge into drains, water courses or onto the ground. Spillages or uncontrolled
----------------------------------	---

discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body

6.3 Methods and material for containment and cleaning up

Spill clean up methods

Wear appropriate personal protective equipment as specified in Section 8. Eliminate all ignition sources. Ventilate and evacuate the area. Cover drains. Stop leak if possible without risk. Absorb spillage with non-combustible, inert absorbent material. Take up mechanically. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container. Clean contaminated objects and areas thoroughly, observing environmental regulations.

6.4 Reference to other sections

Reference to other sections

See section 1 for emergency contact. For personal protection, see section 8. For waste disposal, see section 13.

Section 7: Handling and storage

7.1 Precautions for safe handling

Handling

Do not handle until all safety precautions have been read and understood. Use proper personal protection when handling (refer to Section 8). Avoid inhalation of vapours and contact with skin and eyes. Provide good ventilation. Do not use contact lenses. Avoid prolonged or repeated contact. A risk assessment should be carried out before pregnant persons work with the product. Remove all contaminated clothing and footwear before entering eating area. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Storage precautions

Store in tightly closed original container in a dry, cool and well-ventilated place. Keep away from incompatible materials (see section 10). Opened containers must be carefully closed and kept upright to avoid leakage.

Storage class

Corrosive storage.

7.3 Specific end use(s)

Specific end use(s)

The identified uses are in section 1 of this Safety Data Sheet.

Usage description

Use only according to directions. Replace and tighten cap after use.

Section 8: Exposure controls/Personal protection

8.1 Control parameters

Component	STD	TWA (8 Hrs)		STEL (15mins)		Notes
Iron trichloride	WEL		1 mg/m ³		2 mg/m ³	Iron salts (as Fe)
Hydrochloric acid	WEL	1 ppm	2 mg/m ³	5 ppm	8 mg/m ³	Hydrogen chloride (gas and aerosol mists)
Nickel dichloride	WEL		0.1 mg/m ³			Inorganic water-soluble nickel compounds (as Ni). Sk, Carc (nickel oxides and sulphides) Sen (nickel sulphate).

Ingredient comments

UK Workplace Exposure Limits, EH40/2005 (Fourth Edition 2020).

8.2 Exposure Controls

Protective equipment

**Engineering measures**

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Because specific work environments and material handling procedures vary, safety procedures should be developed for each intended application.

Respiratory equipment

Where risk assessment shows air-purifying respirators are appropriate a full face respirator conforming to EN 143 should be used, and suitable respirator cartridges as a backup to engineering controls. Suggested filter type: ABEK (EN 14387). Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Use respiratory protection as specified by an industrial hygienist or other qualified professional. Use respirators and components tested and approved under appropriate government standards such as CEN (EU). Change filters frequently.

Hand protection

Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374) is recommended. Suggested material: Nitrile rubber gloves. Breakthrough time: > 480 min. Minimum layer thickness: > 0.7 mm. Consult manufacturer for specific advice. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Change gloves regularly.

Eye protection

Wear safety goggles or face shield to prevent any possibility of eye contact. Use equipment for eye protection tested and approved under appropriate government standards such as EN 166(EU).

Other protection

Wear suitable protective clothing as protection against splashing or contamination. The selected clothing must satisfy the European norm standard EN 943. Protective clothing should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Use personal protective equipment tested and approved under appropriate government standards such as CE (EU) or UKCA (GB).

Hygiene measures

Wash hands before breaks and at the end of the shift. Contaminated work clothing should not be allowed out of the workplace. Wash promptly if skin becomes wet or contaminated. When using do not eat, drink or smoke.

Process conditions

Keep container tightly sealed when not in use. Ensure that eye flushing systems and safety showers are located close by in the work place.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Dark red. Brown
Odour	Slight. Ester
Odour threshold - lower	No information available as testing has not been completed.
Odour threshold - upper	No information available as testing has not been completed.
pH-Value, Conc. Solution	< 1
pH-Value, Diluted solution	No information available as testing has not been completed.
Melting point	-12 °C
Initial boiling point and boiling range	> 150 °C
Flash point	No information available as testing has not been completed.

Evaporation rate	No information available as testing has not been completed.
Flammability state	The product is not classified as flammable.
Flammability limit - lower(%)	No information available as testing has not been completed.
Flammability limit - upper(%)	No information available as testing has not been completed.
Vapour pressure	8 Pa
Vapour density (air=1)	No information available as testing has not been completed.
Relative density	No information available as testing has not been completed.
Bulk density	No information available as testing has not been completed.
Solubility	Soluble in water.
Decomposition temperature	No information available as testing has not been completed.
Partition coefficient; n-Octanol/Water	log Kow 1.9
Auto ignition temperature (°C)	No information available as testing has not been completed.
Viscosity	Viscosity, kinematic: 6.993 mm ² /s. Viscosity, dynamic: 10 mPa.s @ 20 °C.
Explosive properties	Not classified as explosive.
Oxidising properties	The product does not meet the criteria to be classified as oxidising.

9.2 Other information

Molecular weight	The product is a mixture, molecular weight data is not required.
Volatile organic compound	No information available as testing has not been completed.
Other information	Density : 1.43 g/cm ³

Section 10: Stability and reactivity

10.1 Reactivity

Reactivity	Corrosive to metals. Reactions may occur with strong acids, strong alkalis and oxidising materials.
-------------------	---

10.2 Chemical stability

Stability	Stable under normal temperature conditions and recommended use.
------------------	---

10.3 Possibility of hazardous reactions

Hazardous reactions	For information on hazardous reaction see section 10.1.
Hazardous polymerisation	No information available for the mixture as testing has not been completed.
Polymerisation description	No information available for the mixture as testing has not been completed.

10.4 Conditions to Avoid

Conditions to avoid	Extremes of temperature and direct sunlight. Avoid heat, flames and other sources of ignition.
----------------------------	--

10.5 Incompatible materials

Materials to avoid	Strong oxidising substances. Strong acids. Strong alkalis. Metals. Do not mix with other chemicals unless listed on directions.
---------------------------	---

10.6 Hazardous decomposition products

Hazardous decomposition products When heated, vapours/gases hazardous to health may be formed. Decomposition products can include and are not limited to: Oxides of carbon. Hydrogen chloride (HCl). Metal oxides.

Section 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No. 1272/2008

Toxicological information	Harmful if swallowed.
Acute toxicity (Oral LD50)	300.00mg/kg Rat
Acute toxicity (Dermal LD50)	No information available as testing has not been completed.
Acute toxicity (Inhalation LD50)	No information available as testing has not been completed.
Serious eye damage/irritation	Causes serious eye damage.
Skin corrosion/irritation	The product is classified as a skin corrosion/irritation hazard.
Respiratory sensitisation	The product is classified as a respiratory hazard.
Skin sensitisation	The product is classified as a skin sensitisation hazard.
Germ cell mutagenicity	The product is classified as a mutagen.
Carcinogenicity	The product is classified as a carcinogen hazard.
Specific target organ toxicity - Single exposure:	
STOT - Single exposure	The product is not classified as a single exposure specific target organ toxin.
Specific target organ toxicity - Repeated exposure:	
STOT - Repeated exposure	The product is classified as a repeat exposure specific target organ toxin.
Inhalation	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Ingestion	Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Skin contact	Causes severe skin burns. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.
Waste management	When handling waste, consideration should be made to the safety precautions applying to handling of the product. Do not discharge waste into drains without treatment. Since emptied containers contain product residue, follow label warnings even after container is emptied.
Routes of entry	Eye and skin contact, ingestion or inhalation.
Target organs	Eyes, skin, digestive system, respiratory system.
Aspiration hazards:	The product is not classified as an aspiration hazard.
Reproductive toxicity:	The product is classified as a reproductive hazard.

11.2 Information on other hazards

Information on other hazards None known.

Section 12: Ecological information

12.1 Toxicity

Acute toxicity - Fish	No information available as testing has not been completed.
Acute toxicity - Aquatic invertebrates	No information available as testing has not been completed.
Acute toxicity - Aquatic plants	No information available as testing has not been completed.
Acute toxicity - Microorganisms	No information available as testing has not been completed.
Chronic toxicity - Fish	No information available as testing has not been completed.
Chronic toxicity - Aquatic invertebrates	No information available as testing has not been completed.
Chronic toxicity - Aquatic plants	No information available as testing has not been completed.
Chronic toxicity - Microorganisms	No information available as testing has not been completed.
Ecotoxicity	The product contains a substance which is harmful to aquatic life with long lasting effects.
Eco toxicological information	The product contains a substance which is harmful to aquatic organisms.

12.2 Persistence and degradability

Degradability	The product is readily biodegradable.
Biological oxygen demand	No information available as testing has not been completed.
Chemical oxygen demand	No information available as testing has not been completed.

12.3 Bioaccumulative potential

Bioaccumulative potential	The product is not bioaccumulating.
Bioaccumulation factor	No information available as testing has not been completed.
Partition coefficient; n-Octanol/Water	log Kow 1.9

12.4 Mobility in soil

Mobility	Mobility is expected to be low.
-----------------	---------------------------------

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	The product does not contain any PBT or vPvB Substances.
---	--

12.6 Endocrine disrupting properties

Endocrine disrupting properties	The product does not contain any substances with endocrine disrupting properties at a concentration above or equal to 0.1%.
--	---

12.7 Other adverse effects

Other adverse effects	None known.
------------------------------	-------------

Section 13: Disposal considerations

Waste management	When handling waste, consideration should be made to the safety precautions applying to handling of the product. Do not discharge waste into drains without treatment. Since emptied containers contain product residue, follow label warnings even after container is emptied.
-------------------------	---

13.1 Waste treatment methods

Disposal methods	Dispose of waste and residues in accordance with local authority requirements, and in accordance with all local, national and international regulations. For waste disposal, use a licensed industrial waste disposal agent.
-------------------------	--

Section 14: Transport information**14.1 UN number or ID number**

UN no. (ADR)	UN2582
UN no. (IMDG)	UN2582
UN no. (IATA)	UN2582

14.2 UN proper shipping name

ADR proper shipping name	FERRIC CHLORIDE SOLUTION
IMDG proper shipping name	FERRIC CHLORIDE SOLUTION
IATA proper shipping name	FERRIC CHLORIDE SOLUTION

14.3 Transport hazard class(es)

ADR class	8
IMDG class	8
IATA class	8

Transport labels



14.4 Packing group

ADR/RID/ADN packing group	III
IMDG packing group	III
IATA packing group	III

14.5 Environmental hazards

ADR	No
IMDG	No
IATA	No

14.6 Special precautions for user

EMS	F-A, S-B
Emergency action code	A3 A803
Hazard no. (ADR)	80
Tunnel restriction code	(E)

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

Section 15: Regulatory information

15.1 Safety, health and environmental regulations/Legislation specific for the substance or mixture

Legislation	REACH etc. (Amendment etc.) (EU Exit) Regulations 2020. Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019.
Approved code of practice	EH40/2005 Workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations 2002 (as amended). [Fourth Edition, 2020].

15.2 Chemical safety assessment

Chemical safety assessment	No chemical safety assessment has been carried out.
-----------------------------------	---

Section 16: Other information

General information	REACH etc. (Amendment etc.) (EU Exit) Regulations 2020. Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019. Workplace Exposure Limits Guidance Note EH40/2005. (Fourth Edition 2020)
Revision comments	This is a first issue.
Revision date	15 September 2022
Revision	1
Safety data sheet status	Approved.

Hazard statements in full

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H301	Toxic if swallowed.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H341	Suspected of causing genetic defects .
H350	May cause cancer .
H360	May damage fertility or the unborn child .
H372	Causes damage to organs through prolonged or repeated exposure .
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H360D	May damage the unborn child.
H412	Harmful to aquatic life with long lasting effects.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use. Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations. The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions. It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations. The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.